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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/697,271

10/31/2003

Dennis M. News

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01/29/2009

MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC
8321 OLD COURTHOUSE ROAD
SUITE 200
VIENNA, VA 22182-3817

EXAMINER

HARRIS, GARY D

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

01/29/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/697,271	Applicant(s) NEWNS, DENNIS M.	
	Examiner GARY D. HARRIS	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6-16 and 19-25 is/are pending in the application.
- 4a) Of the above claim(s) 10-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6-9,16 and 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 10/9/2007 have been fully considered but they are not persuasive. Applicant argues that the underlayer serves as a layer for storing information as polarized domains in the ferroelectric data layer. However, this would be a process of using said storage medium which in a product claim is given minimal weight. Applicant has requested that each of the layers be compared. Examiner has provided an illustration (see below). Additionally, applicant is using comprising language which would allow for additional layers and encompass Ramesh et al. '539. Examiner has no way of testing charge migration rates and looks to the applicant to go on the record as to why Ramesh '539 would not have a similar rate. Claims 1, 6-9, 16, 19, and 20-25 are examined in the instant application.

For convenience the rejection is substantially repeated below:

Claim Objections

Claim 22 is objected to because of the following informalities: Two claim 22's exist (should be claim 22, 23 with appropriate status). Correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

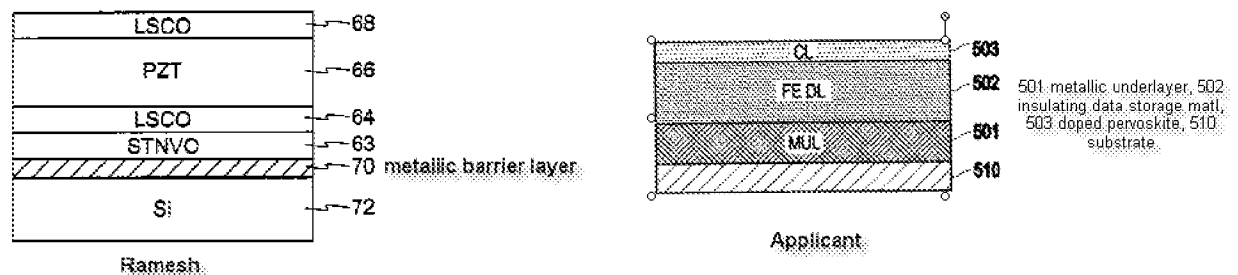
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6-9 & 16, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramesh et al. US 6,642,539.

As to Claim 1 & 16 Ramesh et al. '539 discloses a memory (storage medium) and method of obtaining a barrier layer from a conductive material (metallic underlayer) with ferroelectric memory cells (Col. 9, Line 14-23) as illustrated in figure 8. Ramesh et al. '539 discloses a metallic barrier layer (Layer 70) in contact with a Silicon layer (layer 72) and STNVO layer (layer 63). The layers are comparative as follows:



As Illustrated Applicant's layer 510 corresponds with Ramesh layer 72, layer 501 corresponds to layer 70, layer 502 corresponds with layer 66, layer 503 corresponds with layer 68.

Additionally, Ramesh et al. '539 discloses a total resistance of the barrier decreases with the barrier thickness and with the area of the barrier as it relates to desired switching time. But, does not disclose charge migration rate of the ferroelectric

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data layer. Claim 1 seems to be identical, except that the prior art is silent as to the inherent characteristics. Ramesh refers to materials that can be made electrically leaky depending on the thickness of the material in bulk (Col. 10, Line 63-67), which would be similar to applicants charge migration rate. These properties are inherent in physical properties including charge migration because the applicants and the inventors teach virtually identical structures with similar materials. The physical properties of similar materials will inherently be similar. The burden of proof is shifted to the applicant to show the prior art properties are different from those claimed. See *In re Fitzgerald*, 619 F. 2d 67, 205 USPQ 594 (CCPA 1980).

As to Claim 6, 9, 16 & 19, Ramesh et al. '539 discloses the use of doped perovskite (Col. 6, Line 10-36) and discloses the importance of the barrier layer thickness as it relates to the total resistance (Col. 10, Line 13-23). It would be obvious to one skilled in the art to optimize the thickness in order to change the total resistance in a given layer. The patentability of a product is independent of how it was made. *Ex parte Jungfer* 18 USPQ 1796, 1800 (BPAI 1991); *Brystol-Myers Co. v. U.S. International Trade Commission* 15 USPQ 2d 1258 (Fed. Cir. 1989). The burden is on applicants to show product differences in product by process claims. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

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As to Claim 7, 20 Ramesh et al. '539 discloses the use of SrRuO_3 results in a conductive oxide that bonds well with substrate (Col. 8, Line 49-64) which examiner interprets as an underlayer.

As to Claim 8, Ramesh et al. '539 the use of PZT and SBT (Col. 3, Line 45-65) similar to applicant.

As to Claim 21, Ramesh does not disclose termination at the surface by a bound charge (positive or negative). However, since Ramesh understands that the polarization will become progressively smaller and acts as a capacitor it would necessarily have a feature of a bound charge (Col. 2, Line 57-67), Ramesh additionally understands that polarization can be manipulated with crystallization (Col. 4, Line 14-16) and summarizes charge dopants in Table 1 & 2. It would have been obvious to one skilled in the art to utilize a bound charge (polarized domain) terminating at the top surface through manipulation of crystallization.

As to Claim 22, Ramesh discloses an in-plane orientation (substantially normal to the surface) (Col. 3, Line 16-34).

As to Claim 22b, Ramesh does not disclose termination at the surface by a bound charge (positive or negative). However, since Ramesh understands that the polarization will become progressively smaller and acts as a capacitor it would

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necessarily have a feature of a bound charge (Col. 2, Line 57-67), Ramesh additionally understands that polarization can be manipulated with crystallization (Col. 4, Line 14-16) and summarizes charge dopants in Table 1 & 2. It would have been obvious to one skilled in the art to utilize a bound charge (polarized domain) terminating at the top surface through manipulation of crystallization. Ramesh discloses an in-plane orientation (substantially normal to the surface) (Col. 3, Line 16-34). The sign charges that would be on the surface would be an intended use.

As to Claim 23 & 25, does not disclose the layer over said ferroelectric data layer comprises silicon. However, Ramesh discloses that the LSCO may include a silicon layer in the form of nitride in producing a MEM device in creating a hard surface (Col. 13, 14, Lines 55-67, 1-35). It would have been obvious to include a silicon in order to enhance hardness properties.

As to Claim 24, the inherent characteristic of charge migration has been considered in a previous claim and in interpreted that the Ramesh invention would necessarily have a similar charge migration rate.

New JP11297963 references not relied upon are cited as art of interest.

Column and line numbers are provided for convenience. However, the entire reference should be considered.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GARY D. HARRIS whose telephone number is (571)272-6508. The examiner can normally be reached on 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gary D. Harris/
Examiner, Art Unit 1794

/Holly Rickman/
Primary Examiner, Art Unit 1794

Search Notes (continued)

Application/Control No.

10/697,271

Examiner

GARY D. HARRIS

Applicant(s)/Patent under
Reexamination

NEWNS, DENNIS M.

Art Unit

1794

SEARCHED

Class	Subclass	Date	Examiner

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
Updated East Search History	1/19/2009	GH